of view, as well as in the subject dealt with. Unlike his former volume of collected oceanographical papers, this collection consists of a selection on many subjects, scientific and popular, several reproduced from the pages of NATURE. The strictly scientific memoirs deal with the relation of ice and brine, steam and brine, calorimetry, and the occurrence of ice in Nature, mainly in the form of glaciers. These researches grew out of Mr. Buchanan's observations of melting sea-ice during the cruise of the *Challenger* in the Antarctic regions, and, as regards calorimetry, in part out of observations on solar radiation during a solar eclipse in Egypt. The memoirs themselves form solid and informing reading for students; but they are rendered entertaining by the extraordinarily copious analytical Table of Contents, which occupies thirty pages. In this each paper is not only analysed and epitomised by the author, but also annotated, and sometimes criticised. For example, the discussion (reprinted from NATURE, vol. lxix., p. 293) of the system of the Royal Society (and, for that matter, of all scientific societies) of referring the papers of fellows to unnamed referees, who may suggest or insert alterations, is illustrated by a delightful reminiscence. In explaining how they manage these things better in France, Mr. Buchanan gives this pleasing picture of an episode of his student days:—

"In the summer of 1867, while working in the laboratory of Wurtz in the Ecole de Médecine in Paris, I made some investigations on the products of the reaction of perchloride of phosphorus on salts of isethionic acid. I collected the results in a short paper, and, with Wurtz's approval, I proposed to offer it to the Academy. At that date Wurtz himself was not yet 'of the Institute,' but there was a standing custom that papers by his *élèves* were presented by Balard, the veteran discoverer of bromine. Accordingly, I took my paper with me and made a formal call on M. Balard, who received me with the greatest kindness and courtesy in his study, wearing, as had been the fashion in his younger days, a black frock-coat, and a white neckcloth taken twice round his neck. When I had expressed my desire that he would do me the honour to present my paper to the Academy, he replied at once that he would have the greatest pleasure in doing so. I handed him the paper, he presented it the following Monday, and it was published in the *Comptes rendus* of the next week."

Reference may be made to another annotated paper, the "Chemical and Physical Notes" which appeared originally in the "Antarctic Manual," prepared for Captain Scott's first expedition. These notes proved less useful than they should have been, as there was no trained chemist on the expedition, and the physicist who was appointed did not sail with the *Discovery*, and only joined her in Australia. Had there been a chemist of Mr. Buchanan's manipulative skill and keen insight the notes would have been most helpful, for he now tells us that he prepared them as memoranda for a worker by imagining that the worker was himself. In fact, we gather that they are the instructions which thirty years of experience had shown would have profited him most had he himself received them when he sailed on the *Challenger* in 1872. They will stand, we trust, as inspiration for the chemist of some future expedition. An interesting point about this paper is mentioned in the preface: "It was conveyed to me through an old friend and former colleague that this contribution to the 'Antarctic Manual' had done much to retard the standardisation of research. I took it as a compliment. To standardise research is to limit its freedom and to impede discovery. Originality and independence are the characteristics of genuine research, and it is stultified by the acceptance of standards and by the recognition of authority."

This expression of opinion is really a confession of faith, and Mr. Buchanan's consistent acceptance of it as a guide in his own work is apparent in every paper and article which he has written. It is one of the curious instances of history repeating itself, that in every age the really original thinker is treated as a heretic by organised bodies and conventional men, unless, or until, he can hold his own against all attempts at suppression, passive and active; then he becomes a prophet, whose disciples, in turn, exercise a like intolerance of the forerunners of the next advance.

H. R. M.

OUR BOOKSHELF.

A Practical Manual of Autogenous Welding (Oxy-Acetylene), with a Chapter on the Cutting of Metals with the Blowpipe. By R. Granjon and P. Rosemberg. Translated by D. Richardson. Fourth edition. Pp. xxii+244. (London: Charles Griffin and Co., Ltd., 1916.) Price 5*s.* net.

THE fact that three large editions of this English translation have been exhausted in less than three years is evidence of the value it has been to those interested in the special technical methods described. Owing to the special nature of the subjects dealt with, the chief demands for the book must have arisen from workshops and factories where the processes so fully described are in actual use.

Although autogenous welding by means of the oxy-acetylene blowpipe has been largely used in this country, it has not received the same amount of attention as it has in other countries, such as France, for instance, where the Union de la Soudure Autogène has done valuable work in the encouragement of research and in the improvement of the methods of application.

The book deals with the properties and manufacture of oxygen and acetylene, and with the erection, testing, and working of welding installations; practical information is given on the composition of the metal welding rods and cleaning fluxes used, and on the preparation and execution of welds; and the autogenous welding of iron, steel, copper, brass, bronze, aluminium, and other metals and alloys is considered in detail.

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A chapter is devoted to the important operation of cutting iron and steel by means of the blowpipe, in which illustrations of different types of cutting blowpipes are given, and the application of the process to new work, repairs, and demolitions is considered.

The book contains a large number of illustrations of practical value and can be very strongly recommended to all interested in the subject, especially as it contains a large amount of information not otherwise obtainable in the English language. C. O. BANNISTER.

Hawaiian Legends of Volcanoes (Mythology). Collected and translated from the Hawaiian by W. D. Westervelt. Pp. xv + 205. (Boston, Mass.: Ellis Press; London: Constable and Co., Ltd., 1916.) Price 6*s*. net.

MANY of us became first acquainted with Pele, the goddess of Kilauea, in the fascinating description of the Sandwich Islands by Miss Isabella Bird (Mrs. Bishop). The filaments of glassy lava, spun out by the wind from blobs thrown up into the air, have since become familiar to generations of students under the name of "Pele's hair." Mr. Westervelt now reveals Pele to us as a beautiful and wayward princess, warmly passionate, yet ready to consume her lovers, and dominating the long volcanic slopes with sheets and whirls of flame. The main interest of the legends lies in the evidence they provide of the constant and terrible menace under which the Hawaiians drew up their system of natural theology. The insistence on Pele's arrival from a distance suggests that the first settlers knew volcanoes elsewhere, but found Hawaii peaceful during their earliest years of occupation.

The author has illustrated his charmingly produced book by photographs of notable volcanoes, which greatly increase its attraction for the geologist, and include such rare scenes as the ideally shaped and snow-covered cone of Mount Shishaldin, in Alaska. Mont Pelée of Martinique (p. 160) recalls, by an odd coincidence, the name of the impulsive and beautiful devil of Hawaii. Humane anthropologists will take some comfort from Hii-aka-i-ka-poli-o-Pele, the youngest sister, who was literally incubated "in the bosom of Pele." G. A. J. C.

Fungoid and Insect Pests of the Farm. By F. R. Petherbridge. Pp. vi + 174. (Cambridge: At the University Press, 1916.) Price 4*s*. net.

THE author tells us this book has been written for those who wish to acquire some practical knowledge of farm and garden pests. It naturally does not aim at dealing with all the numerous enemies which affect crops, but rather at giving an accurate account of some of the commoner forms. It is a pity a great many more of the common pests were not included, especially amongst the Arthropods, for then it would have been of very considerably greater value. The accounts also of many of the pests treated in the book are far too short to be really helpful.

Part i. deals with fungoid diseases, including the potato disease, damping off, onion mildew, etc. Chap. iii. (pp. 35-47) describes the well-known finger-and-toe disease and the important wart disease of potatoes. In other chapters the author deals with mildews, ergot and clover sickness, rusts and smuts. Altogether nearly half the book is taken up with fungoid pests. A chapter is given on moths and butterflies, which deals almost entirely with the surface caterpillars. To the diamond-back moth five lines are devoted, in which one is told how to try to destroy it, without the slightest hint as to how to identify it. Wireworms and turnip-flea beetles (chap. x.) are better dealt with, and also the chafers; errors occur in the references to the figure here. The chief flies mentioned are the frit and gout flies, the Hessian fly, the cabbage-root flies, daddy-long-legs—the parents of leather-jackets—and the warble-flies. The last chapter deals with the eelworms, the accounts of which are far too short and vague to serve any useful purpose. There are fifty-four figures, most of which are good, but not nearly enough of the Arthropods for the book to be of much help to "those who wish to acquire some practical knowledge."

FRED. V. THEOBALD.

LETTERS TO THE EDITOR.

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of NATURE. *No notice is taken of anonymous communications.]*

Adjustable Clock-dials.

To gain daylight by adjustment of the clock is a brilliant practical idea, but the present method of realising it by moving the hands of the clock is grossly unscientific, and should, I think, be changed for the alternative one.

Let the circular disc of the clock-dial be put in place by screws in curved slots. In spring and autumn, when changing time, we should rotate the dial backwards and forwards respectively, leaving the hands untouched. The advantages of this procedure are many:—

(1) The zenith and nadir of the sun are the natural turning-points in the day. These would still occur, as they should, at the *top* of the dial, though the time would then be one o'clock (for summer time).

(2) The times of rising and setting of the sun at the equinoxes are other natural points of time. These would occur, as they should, at the *bottom* of the dial.

One's concepts of time in the day are conditioned by the sun's movements, and the adjustment of the clock as here suggested would at least give pride of place to Nature's time signals; all the other points of time in the day could be varied without disturbance to one's instincts. As we are doing at present, the top and bottom of the clock are losing their special significance, and they mean one thing for several months and something different for the rest of the year.

(3) Some clock hands—*e.g.* in strikers—cannot be moved back. Hence in autumn we should avoid the painful necessity of standing by the clock during the

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